

a Montrose Environmental Group company

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United States Environmental Protection Agency, Region 4
61 Forsyth Street, SW
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Re: Response to EPA Review, dated July 9, 2020 for the *Site Characterization Summary Report Operable Unit 2 (OU2) Site-Wide Groundwater and Cell Building Area for the LCP Chemicals Site, Brunswick, Georgia*, dated February 2020.

EPA COMMENTS

1. *EPA requests that spatiotemporal modeling of the contaminants using 2018 to 2020 data be presented in the RI/FS.*

Response: Various modes of data evaluation will be presented in the RI Report including spatiotemporal modeling, utilizing the upcoming 2020 sampling event.

2. *Figure 3.1, Potentiometric Surface and Groundwater Flow: Satilla Formation and Figure 3.2, Potentiometric Surface and Groundwater Flow: Ebenezer Formation: The figures do not include the monitoring well IDs. In addition, Figure 3.1 indicates that green-colored monitoring wells were not used for the potentiometric surface interpretation, but rationale for this decision is not provided on the figure or discussed in Section 3.4, Potentiometric Surface and Groundwater Flow. Please add the rationale for this decision to the text.*

Response: Figure 3.1 and Figure 3.2 are revised to include the monitoring well IDs.

The following text is added to the SCR to explain the omission of the 500-series wells from the potentiometric surface:

The site monitoring well network has expanded over time to accomplish various goals. The green wells omitted from the potentiometric surface interpretation are primarily "500-series" monitoring wells installed in 2007 and 2008 to inform the design and monitor performance of the groundwater recovery system intended to treat the CBP. The wells were surveyed separately from the majority of the well network and, based on the groundwater level data, for this reason, the "500-series" monitoring wells were omitted from the potentiometric surface interpretation series. These wells are geographically clustered with other longer-term monitoring wells dispersed throughout, thus it is not necessary to use the 500 series wells in the hydrologic interpretation.

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3. *Appendix B, Electronic Copy of Groundwater Data Trend Viewer (Excel Pivot): The y-axis for all parameters is presented as micrograms per liter ($\mu\text{g/L}$); however, the field parameters included in this table are not reported in $\mu\text{g/L}$. The reason for this in the document is acceptable and the viewer is a useful tool. No edit is required for the document. However, EPA requests that graphical plots be included in the RI/FS with correct axes labels.*

Response: A revised version of the Excel Pivot viewer will be provided with the forthcoming RI/FS.

4. *EPA requests that the Depth to Water (DTW) measurements of the "D" wells be performed in the upcoming CBP semi-annual monitoring event and reported in the RI/FS.*

Response: DTW measurements of the "D" series wells will be performed during the upcoming monitoring event.

5. *EPA notes that there appears to be high concentrations of all COCs at or near MW-111 with no horizontal limit of extent demonstrated north/northeast/northwest/east. EPA requests descriptive details be presented in the text of the document and the upcoming RI/FS for clarity.*

Response: The source of the COCs exhibited at well MW-111 is understood, explained by former industrial process waste disposal in the nearby Brunswick-Altamaha Canal and the North Separator Tank, features which were addressed in the upland removal response action. Well MW-111 is located at the northern edge of the site property along the uplands/marsh. There are practical constraints and considerations regarding further delineation wells in the area such as: to the north is a former dump site operated by the County, to the east are surface water features namely the "Dillon Duck" wetlands basin and the former theater pond, to the west is the marsh.

MW-111 is characterized by a moderate to low mercury condition (the 'A' well is the highest with a 2017 event result of 3.5 ppb) which has been trending downward over the long period of monitoring, a condition attributed to former placement of bleach muds in this area removed in the 1994-97 Removal Action. Higher concentrations of petroleum hydrocarbons such as PAHs, trimethylbenzene, and benzene occur at MW-111 attributed to former placement of petroleum refinery sludge also removed in the Removal Action. This condition resulting from the sludge is prevalent along much of the uplands/marsh shoreline to the south of MW-111 where many more wells exist, and the horizontal extent to the west (downgradient) is characterized by well transects such as MW-302>>MW-308>>MW-310 and MW-110>>MW-303>>MW-309>>MW-311 where the downgradient wells exhibit trace to non-detect COC levels.

Discussion of the MW-111 area with respect to COC trends, the source of the COC, and groundwater flow will be provided in the forthcoming RI/FS.

6. *EPA notes that there is a disconnect between the figures and pivot tables used for data evaluation, which can confuse interpretation. A single figure for each COC with each well identified along with sample results or isoconcentration maps would clearly depict exceedances and how the extent of contamination is currently being depicted. EPA requests that these types of figures be provided in the RI/FS for clarity in addition to the pivot tables.*

Response: The document already provides a single figure for each COC and reports the sample result (colored coded symbol) that includes identification of the applicable water quality benchmark. We will revise the figures in the RI Report to include well IDs with the sample results, for clarity and comparison to the Excel Pivot.

7. *A review was conducted of the figures provided within the OU2 Site Characterization Summary Report. Presently there are no monitoring wells located up-gradient within the nearby area of monitoring well MW-111, which is also adjacent to the wetlands area of the Site. There are elevated detections for Site related COCs within MW-111, for example benzene, benzo(a)anthracene, naphthalene, and 1-methylnaphthalene. EPA requests additional sampling for MW-111. In addition, the origin of the elevated detections for Site related COCs within MW-111 should be addressed in the RI and will need to be addressed in any remedies considered in the Feasibility Study, as appropriate. Additional upgradient wells in the nearby area may be needed to better define the issue as the site moves into the Remedial Design and/or Remedial Action phase.*

Response: See comment #5 response, noting MW-111A will be sampled during the next sampling event per EPA's list of wells in Comment 10.

8. *EPA is specifically interested in MW-356B due to the previous elevated detections of mercury. Mercury detections within this well have continued to increase over time, until the 2018 sampling event, when mercury detections went from 34.39 to 1.2 ug/l. It is unclear if the sudden decrease in mercury at this location is due to field sampling/lab error or if mercury has truly decreased in concentration. The adjacent shallow well MW-356A also had an elevated detection for mercury in 2018 (162 ug/L). The EPA requests that MW-356B be sampled prior to the RI.*

Response: MW-356B will be sampled during the upcoming sampling event.

9. *EPA is specifically interested in MW-113C due to elevated detections of naphthalene. In 2012 naphthalene was reported at 0.68 ug/L, and in 2018 it was reported at 26 ug/L. Over the six-year*

period naphthalene has increased in detection. Monitoring well locations within the boundaries of the Site that have elevated detections above the tapwater value of 0.12 ug/L for naphthalene will still need to be addressed in the future. EPA requests that MW-113C be sampled prior to the RI.

Response: MW-113C will be sampled during the upcoming sampling event.

10. Please see a table below which lists wells EPA requests to be sampled for the RI to ensure there are not data gaps. EPA requests these wells be sampled during the next site sampling event.

<i>Limited Data Points</i>	<i>Elevated Detections</i>	<i>Confirm Decreasing Trends</i>
<i>MW-1B</i>	<i>HWEast4</i>	<i>HWEast5</i>
<i>MW-306A</i>	<i>HWWest2</i>	<i>MW-111A</i>
<i>MW-361B</i>	<i>HWWest3</i>	<i>MW-112B</i>
<i>MW-362A</i>	<i>MW-131</i>	<i>MW-112C</i>
<i>MW-362B</i>	<i>MW-132</i>	<i>MW-113A</i>
<i>MW-506A</i>	<i>MW-135</i>	<i>MW-113C</i>
<i>MW-510A</i>	<i>MW-304</i>	<i>MW-115A</i>
<i>MW-507A</i>	<i>MW-353B</i>	<i>MW-115D</i>
	<i>MW-356B</i>	<i>MW-301B</i>
	<i>MW-357A</i>	<i>MW-505A</i>
	<i>MW-358B</i>	<i>MW-513A</i>
	<i>MW-360D</i>	<i>MW-516B</i>
	<i>MW-503B</i>	<i>MW-517B</i>
	<i>MW-504A</i>	
	<i>MW-506B</i>	
	<i>MW-507B</i>	
	<i>MW-509B</i>	
	<i>MW-512B</i>	
	<i>MW-513B</i>	
	<i>MW-515B</i>	
	<i>MW-516A</i>	
	<i>MW-517A</i>	

Response: The upcoming sampling event will include this list of wells¹. Testing will be performed for TAL metals plus mercury, volatile organic compounds, and polycyclic aromatic hydrocarbons consistent with the 2017 site-wide sampling event.

¹ MW-1B and MW-306A will not be included in the 2020 sampling plan as agreed to with the EPA. MW-306A no longer exists as it was destroyed in 1998 during the marsh removal action. MW-1B will not be sampled as it was part of the CO₂ injection pilot work and was only sampled during that time (i.e., limited data history), and furthermore, MW-1B is co-located with the MW-115 well series.

COMMENTS PROVIDED BY THE GEORGIA EPD

1. *Section 4.2.2, 1st full paragraph, last two sentences, pg. 20 – this is misleading and inaccurate. If it were, the Arsenic levels in Table 4-2c would not be mostly non-detect.: Please re-read. EPD's statement is that if Arsenic detections at the site were attributable to background (rather than site operations) the Arsenic results in Table 4.2c "...would not be mostly non-detect...", which the RPs point out (and EPD agrees) that they are. Correct the text.*

Response: The discussion of background arsenic in paragraph 4.2.2 has been removed and will be evaluated further in the forthcoming RI.

2. *Fig 5.2—5.4, 5.8 – these figures show a misleading depiction of groundwater contamination, in that ND levels above the MCL are color coded as ND rather than the concentration range to which they properly belong. This markedly changes the graphical depiction of benzene contamination on Fig 5.2B and C, chlorobenzene on Fig 5.3C, and dichloromethane on Fig 5.4B and C and Arsenic levels on Figure 5.8C-D. Please check re-check all Figures regarding the Current Nature and Extent of the Site Groundwater Condition. In instances where detection limits are above the MCL, the color-coding should reflect contamination, consistent with risk assessment methodology that requires evaluation of constituents where detection limits are above a screening level. Failure to show detection limits above the MCL as exceedances "...shows a misleading depiction of groundwater contamination..." Correct the figures.*

Response: We respectfully disagree that the current depiction and presentation of groundwater concentrations is misleading or erroneous. The format employed for these figures is accurate, whereby a non-detect result is not treated in the same manner as a true detection (i.e., a non-descript color is used to denote a non-detect and labeled with the detection limit value), whereas a colored symbol gradation is used to help visualize the concentration gradient where chemical detections are reported. This practice is customary in graphic presentations of environmental testing data and has been used in numerous data presentations and reporting for this site.

3. *Fig 5.12A – the ND indicators on this figure are missing.: Two "<0.25" locations south of the causeway and one "<0.05" location in the SE corner of Cell Building #2 do not have ND (or any other) sample indicator, only the numerical value. Add the correct indicators to the Figure.*

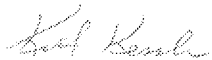
Response: Figure 5.12A is revised.

4. *Fig 5.12E – this appears to be inconsistent with Fig 5.12B and C: What is the timeframe for the sample results shown on Figure 5-12 B and C? EPD compared them with the 2018 results on Figure 5-12E, thus our comment. Re-review of the document and figures does not provide any indication of the dates of the analyses shown on the figures, except for the spatio-temporal*

presentation on Figure 5-12E. Please provide the timeframe for the data in the figures on the figures and eliminate the apparent inconsistency.

Response: Section 5 figures (Series 5.2 through 5.14) utilize the most recent testing results for each location spanning the period of 2017 through 2019. This is detailed in Section 5.1.1 of the SCR which states, "Figures depict the most current test result for a given well; for the Satilla this is a combination of 2017-2019 data whereas for the Ebenezer all wells were sampled in 2019". The last comprehensive sampling event was performed in 2017 whereas targeted sampling of select monitoring wells near the CBA and within the Ebenezer formation (HW and D-series wells) have occurred in 2018 and 2019. Lastly, a direct comparison to the spatial temporal modeling which is year-specific may not correlate exactly to the other Section 5 figures (a through d figure depictions) due to the blending of multiple years.

Sincerely,



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